National Institute of Environmental Health Sciences

Desert dust and human health disorders

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Abstract:

Dust storms may originate in many of the world's drylands and have an effect not only on human health in the drylands themselves but also in downwind environments, including some major urban centres, such as Phoenix, Kano, Athens, Madrid, Dubai, Jedda, Tehran, Jaipur, Beijing, Shanghai, Seoul, Taipei, Tokyo, Sydney, Brisbane and Melbourne. In some parts of the world dust storms occur frequently throughout the year. They can transport particulate material, pollutants, and potential allergens over thousands of km from source. The main sources include the Sahara, central and eastern Asia, the Middle East, and parts of the western USA. In some parts of the world, though not all, the frequency of dust storms is changing in response to land use and climatic changes, and in such locations the health implications may become more severe. Data on the PM10 and P2.5 loadings of dust events are discussed, as are various pollutants (heavy metals, pesticides, etc.) and biological components (spores, fungi, bacteria, etc.). Particulate loadings can far exceed healthy levels. Among the human health effects of dust storms are respiratory disorders (including asthma, tracheitis, pneumonia, allergic rhinitis and silicosis) cardiovascular disorders (including stroke), conjunctivitis, skin irritations, meningococcal meningitis, valley fever, diseases associated with toxic algal blooms and mortality and injuries related to transport accidents.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Extreme Weather Event

Air Pollution: Allergens, Dust, Particulate Matter

Extreme Weather Event: Other Extreme Event

Extreme Weather Event (other): dust storms

Geographic Feature:

resource focuses on specific type of geography

Desert, Urban

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Dermatological Effect, Respiratory Effect

Respiratory Effect: Asthma, Bronchitis/Pneumonia, Upper Respiratory Allergy

Resource Type: ☑

format or standard characteristic of resource

Review

Timescale: ☑

time period studied

Time Scale Unspecified